

GUR'YANOVA, Ye.F.

New amphipod species (Amphipoda, Gammaridea) from the North
Pacific Ocean. Trudy Zool. inst. 18:166-218 '55. (MLRA 9:2)
(Pacific Ocean--Amphipoda)

GUR'YANOVA, Ye.F.

Isopoda of the Pacific Ocean Report no. 6. New species of
Valvifera from the Kurile-Sakhalin region. Trudy Zool.inst. 21:
208-230 '55. (MLRA 9:5)
(Pacific Ocean--Isopoda)

GURIYANOVA, Ye. F.

"Comparative Research of Biology of the Littoral in the Far Eastern Seas,"

paper delivered at the Ninth Pacific Science Congress, Bangkok, Thailand,
18-30 November 1957.

Prof. of Marine Hydrobiology, Leningrad State Univ.
Zoological Inst, Acad. Sci. USSR

B-3,095,367, 7 Jan 58 (comments)
Abst. Available

GUR'YANOVA, Ye.F.

Brief results of hydrobiological research carried out in Mezen' Bay
in the summer of 1952. Mat. po kompl.izuch.Bel.mor. no.1:252-281
'57. (MLRA 10:8)

1.Zoologicheskii institut AN SSSR.
(Mezen' Bay--Marine biology)

GUR'YANOVA, Ye. F.

AUTHOR: GUR'YANOV, E. F. PA - 2467
TITLE: The Science of Hydrobiology of the Seas in Red China.
(Morskaya gidrobiologiya v Kitaye, Russian).
PERIODICAL: Vestnik Akademii Nauk SSSR, 1957, Vol 27, Nr 1, pp 74 - 77
(U.S.S.R.)
Received: 5 / 1957 Reviewed: 5 / 1957
ABSTRACT: The author studied the present stage of hydrobiology of the
seas in Red China by orders of the Ichthyological Commission
of the Soviet Academy of Science.
She describes work carried out in Red China within this field
of science as well coordinated and well organized. Research
work in this field is carried out in accordance with a plan
leading in the following four directions. 1) Investigation of
oceanic fauna and flora, in order to determine existing
sources of supply.
2) Study of oikology and biology for the most important
branches of industry for the purpose of determining the rules
governing distribution.
3) The study of embryology and the postembryonal develop-
ment of tissues.
4) Detailed research work concerning methods of the multi-
plication and breeding of invertebrae and water plants in the

Card 1/2

PA - 2467

The Science of Hydrobiology of the Seas in Red China.

interest of the production of foodstuffs and products important for industry.

The centers of research are: The Oceanographic Laboratory of the Chinese Academy of Science, the Central Institute of Fishery at Zindao, the Shanghai Academy for products from the seas etc. It is a well-known fact that for some time the population of China have been using fishery products as raw material as well as as food, but these products are still much more expensive than agricultural products, and it is therefore now task of Chinese scientists to discover new areas where these invertebrae and waterplants may be found and bred. Particular attention is therefore paid by Chinese scientists to the research and the application of planktons as fish-feeding basis and for the purpose of the promoting of the growth of waterplants. At present there are 18 universities and 190 other High-schools in the Chinese Peoples' Republic, in which greatest attention is paid to the study of biological problems.

Not given.

Card 2/2

ASSOCIATION:

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress.

Gur'yanova, Ye. F.

AUTHOR: Gur'yanova, Ye. F., Professor 30-2-36/49

TITLE: Investigation of the Yellow Sea (Issledovaniya Zheitogo Mor'ya). Results of the ~~Sino-Soviet~~ Expedition (Itogi sovetsko-kitayskoy ekspeditsii)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1958, Nr 2, pp 104-105 (USSR)

ABSTRACT: A group of members of the Zoological Institute consisting of the marine hydrobiologists Ye. F. Gur'yanova, P. V. Ushakov, A. A. Strelkov, O. A. Skarlato, and of the parasitologists B. Ye. Bykhovskiy and L. F. Nagibina worked for two months at the Yellow Sea. They investigated the coastal fauna of the Shantung peninsula, collected marine invertebrata, and especially investigated some groups of invertebrata and of the parasite fauna of saltwater fish. As bases of the expedition served the Laboratory for Marine Biology of the Chinese Academy of Sciences in Tsindao and the Yan'tay branch of the Laboratory. A detailed research plan had been arranged with the Laboratory, the specialists of which Liu Zhu-yuy, Chi Chung-yey, and Vu Pao-lin belonged to the research group. The investigations were made under the direction of the well-known Chinese scientist Chang Si and of Ye. F. Gur'yanova.

Card 1/2

Investigation of the Yellow Sea. Results of the Sino-Soviet Expedition

30-2-36/49

For the first time investigations of the vertical distribution of fauna and flora in the Yellow Sea were made. In the estuary of the Pey-kho river investigations of the amount and of the distribution of the littoral fauna in dependence on the variations in the degree of salinity were made. The parasitologists investigated about 450 fish species and other things which will be very useful for the development of ecological parasitology which is carried out in the Soviet Union by the school of Professor V. A. Dogel'. The author also gives a detailed description of the different investigations, and states that the coastal fauna of the Yellow Sea strongly differs in many respects from the fauna of the seas of the Far East of the Soviet Union. For a profound analysis of the fauna it would also be necessary to make investigations in the seas of North and South China. In order to make full use of the research material it is necessary to deal with it in detail. The co-operation between Soviet and Chinese specialists showed good results for both sides.

AVAILABLE:
Card 2/2

Library of Congress

1. Yellow Sea-Plant life 2. Yellow Sea-Animal life 3. Scientific research-Yellow Sea

GUR'YANOVA, Ye.F., doktor biol.nauk

Amphipod fauna of Macquarie Island. Inform.biul.Sov.antark.eksp.
no.3:55-56 '58. (MIRA 12:4)

1. Zoologicheskii institut AN SSSR.
(Macquarie Island--Amphipoda)

GURYANOVA, Ye. P.

"The Fauna Distribution Regularities of the Intertidal Zone of the North-Western Part of the Pacific".
report to be submitted for the Intl. Oceanographic Cong. New York City,
31 Aug - 11 Sep 1959.

(Zoological Inst., Academy of Sciences)

SOV/30-59-3-25/61

3(0), 3(9)
AUTHOR:

Gur'yanova, Ye. F., Professor

TITLE:

A Zoological Maritime Expedition on the Island of Hai-nan
(Morskaya zoologicheskaya ekspeditsiya na ostrove Khaynan')

PERIODICAL:

Vestnik Akademii nauk SSSR, 1959, Nr 3, pp 89-92 (USSR)

ABSTRACT:

The expedition began to work in the spring of last year. It was organized by the Institute of Maritime Biology of the Chinese Academy of Sciences and the Zoologicheskii institut Akademii nauk SSSR (Zoological Institute of the Academy of Sciences of the USSR) under an agreement between the USSR and the People's Republic of China as well as upon recommendation of the II Plenum of the Commissions of the USSR, the People's Republic of China, the People's Republic of Korea, and the Democratic Republic of Vietnam on research in the fisheries in the Western Pacific. Professor Chang Hsi (China) and Professor Ye. F. Gur'yanova (Soviet Union) were appointed leaders of the expedition. Further, Ch'eng Ch'ing-tung (China), head of the ichthyological expedition and Hsia Yen-chang (China), member of the algological expedition are mentioned. The expedition collected tropical maritime fauna and investigated monogenetic

Card 1/2

A Zoological Maritime Expedition on the Island of Khaynan' SOV/30-59-3-25/61

sucking worms of sea-fish for the purpose of investigating the Chinese littoral, whereby also many problems of the fauna of the (Soviet) Far East may be explained. The expedition worked three months under the assistance of parasitologists and hydro-biologists, whose investigations are discussed in detail. The work on the Island of Hai-nan was dedicated to the characterization of the tropical zone. Investigations in other seasons will be made in the fall and winter of 1959.

Card 2/2

GUR'YANOVA, Ye.F.

Littoral study of Chinese seas. Izv.AN SSSR,Ser.biol. no.5:
741-759 J1-Ag '59. (MIRA 13:2)

1. Zoological Institute, Academy of Sciences of the U.S.S.R.
Leningrad.

(Hainan Island--Seashore, Biology)

(Shantung Province--Seashore biology)

LINDBERG, G.U.; SHCHEDRINA, Z.G.; DOGEL', V.A.; RESHETNYAK, V.V.; STRELKOV, A.A.; KOLTUN, V.M.; NAUMOV, D.V.; IVANOV, A.V.; BYKHOVSKIY, B.Ye. ZHUKOV, Ye.V.; PERGAMENT, T.S.; KOROTKEVICH, V.S.; USHAKOV, P.V.; KLYUGE, G.A.; ANDROSOVA, Ye.I.; GOSTILOVSKAYA, M.G.; BRODSKIY, K.A.; GUSEV, A.V.; TARASOV, N.I.; GUR'YANOVA, Ye.F.; VAGIN, V.L.; IOMAKINA, N.B.; BULYCHEVA, A.I.; KOPYAKOVA, Z.I.; LOZINO-LOZINSKIY, L.K.; YAKOVLEVA, A.M.; GALKIN, Yu.I.; SKARIATO, O.A.; AKIMUSHKIN, I.I.; D'YAKONOV, A.M.; BARANOVA, Z.I.; SAVEL'YEVA, T.S.; SKALKIN, V.A.

List of the fauna of marine waters of southern Sakhalin and southern Kuriles. Issl.dal'nevost.mor.SSSR no.6:173-256 '59.
(MIRA 13:3)

1. Zoologicheskii institut AN SSSR.
(Sakhalin--Marine fauna)
(Kurile Islands--Marine fauna)

GUR'YANOVA, Ye.F., prof.

Fauna of the shores of Hainan. Priroda 49 no.11: 5-41 W '60.
(MIRA 13:11)

1. Zoologicheskii institut AN SSSR, Leningrad.
(Hainan--Marina fauna)

GUR'YANOVA, Yevpraksiya Fedorovna; PAVLOVSKIY, Ye.N., akademik, glav. red.
STREIKOV, A.A., prof., red. izdaniya; BYKHOVSKIY, B.Ye., red.;
GROMOV, I.M., red., red.; MONCHADSKIY, A.S., red.; SKARLATO, O.A.,
red.; SHTAKEL'BERG, A.A.; VEL'YATAGO, N.A., red. izd-va;
KONDRAT'YEVA, M.N., tekhn. red.

[Amphipods of the northern part of the Pacific Ocean (Amphipoda-
Gammaridea). Part 1] Bokoplavy severnoi chasti Tikhogo okeana
(Amphipoda-Gammaridea); chast' 1. Moskva, Izd-vo Akad.nauk SSSR,
1962. 440 p. (Operadeliteli po faune SSSR, no.74.) (MIRA 15:6)

1. Direktor Zoologicheskogo instituta Akademii nauk SSSR
(for Pavlovskiy).

(Pacific Ocean--Gammaridae)

GUR'YANOVA, Ye.F., doktor biolog.nauk

Studying the fauna and flora of Asiatic seas. Vest.AN SSSR
33 no.2:105-106 F '63. (MIRA 16:2)
(Pacific Ocean--Marine biology)

GUR'YANOVA, Ye.F.

Soviet scientists in Cuba. Vest. AN SSSR 33 no.8:88-90 Ag
'63. (MIRA 16:8)

(Cuba--Relations (General) with Russia)
(Russia--Relations (General) with Cuba)

GUR'YANOVA, Ye.F.

Zonal geographic changes in the littoral of the Pacific coast of Asia. Dokl. AN SSSR 141 no.2:453-456 N '61. (MIRA 14:11)

1. Zoologicheskii institut AN SSSR. Predstavleno akademikom Ye.N. Pavlovskim.

(Pacific Ocean--Marine ecology)

GUR'YANOVA, Ye. F.

Amphipoda and Isopoda of the marginal Atlantic depression
of the Arctic basin (Nansen's Depression). Trudy AANII
259:255-315 '64. (MIRA 17.12)

GUR'YANOVA, Ye.F.; MAL'CHEVSKIY, A.S.; GILYAROV, M.S.

Reviews. Zool. zhur. 44 no.2:312-315 '65.

(MIRA 18:5)

GUR'YANOVA, Ye.F.

Taxonomy and generic relationships between Briopisa, Eriopisella
and Niphargus (fam. Gammaridae, Crustacea-Amphipoda). Trudy Zool.
inst. 35:216-231 '65. (MIRA 19:1)

1. Zoologicheskii institut AN SSSR.

R. RYANOVA, Ye. N.

64

THE DEHYDRATION OF MAGNESIUM CHLORIDE WITH
LIQUID AMMONIA. A. M. MONTEZON, E. N. GURMANOVA, and
A. I. SHALOSHTEIN. Translated from *Zh. Prikl. Khim.*
12, 279-281 (1959). Izv. (AEC-48-1568)

The dehydration of $MgCl_2$ with liquid NH_3 by the Bliz method (British patents 427,461 and 522,482) is discussed. Laboratory-scale tests showed complete dehydration with negligible hydrolysis of the salt, lack of apparatus corrosion, and freedom from wastage, since the NH_3 used for the dehydration was regenerated or used as a raw material for conversion to other materials. (J.A.G.)

ca

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Physicochemical properties of solutions in condensed gases. XV. Electric conductivity of acids and salts in liquid ammonia. R. N. Gai'danov and V. A. Piskov. *J. Phys. Chem.* (U. S. S. R.) 6, 345 (1960). The disson. consts. and the ionic radii (sums) in A. were: NH_4ClO_4 , 5.4×10^{-4} , 3.00; NH_4NO_3 , 4.3×10^{-4} , 3.18; NH_4Br , 2.4×10^{-4} , 3.00; NH_4Cl , 1.28×10^{-4} , 3.31; HCN , 1.0×10^{-4} , 3.00; H_2S , 0.8×10^{-4} , 3.05; HCOOH , 3.4×10^{-4} , 2.00; HCOONa , 3.5×10^{-4} , 2.50; $\text{C}_6\text{H}_5\text{COOH}$, 1.5×10^{-4} , 2.32; $\text{C}_6\text{H}_5\text{COONa}$, 1.8×10^{-4} , 2.38; CH_3COOH , 7.7×10^{-4} , 2.10; CH_3COONa , 1.0×10^{-4} , 2.22; CH_3COOK , 7.7×10^{-4} , 2.15 detd. at -40° and at concns. down to $10^{-4} M$. The Onsager-Debye theory in its classic form cannot be applied to NH_3 solns. of electrolytes even up to concns. of $10^{-4} N$, while the Fuoss-Kraus theory gives the correct values for elec. cond. for strong electrolytes up to 10^{-4} and for weak ones up to $10^{-3} N$. The disson. consts. and ionic radii calcd. from cond. data are true measures of the relative strengths of electrolytes. Liquid NH_3 decreases the difference in the relative strengths of weak and strong acids, especially in the case of inorg. acids. The strengths of org. acids are decreased. The increased strength of the weak acids is due to the strong attachment of NH_3 to protons, as shown also by the calcd. heats of disson. of acids in liquid NH_3 . F. H. R.

AS 11.4 METALLURGICAL LITERATURE CLASSIFICATION


GUR'YANOVA, YE. N.

600

1. GUR'YANOVA, YE. N.; SYRKIN, YA. K.

2. USSR (600)

"Preliminary Report and Discussion -- Dipole Moments of Phenylodichlorides and Their Derivatives," Zhur. Fiz. Khim .3, No. 10, 1939. Moscow, Physico-Chemical Institute imeni Karpov, Laboratory of Dipole Features. Received 23 July 1939.

9.  Report U-1615 3 Jan 1952.

PROCESSES AND PROPERTIES INDEX

2

Dipole moments of phenyl iododichloride and its derivatives. E. N. Goryunova and Ya. K. Syrkin. *Acta Physicochim.* U.S.S.R., 11, 687-9 (1960) (in English).—At 25°, the experimentally found dipole moments and those calculated from the principle of vector sums, of aryl iododichlorides are: phenyl 2.81, —; o-tolyl, 2.55, 2.44; m-chlorophenyl, 2.82, 2.83; p-tolyl, 3.08, 3.01; o-chlorophenyl, 2.96, 3.0; m-chlorophenyl, 2.11, 2.27; p-chlorophenyl, 1.3, 1.06; of m-chloriodobenzene, 1.29, 1.44; p-chloriodobenzene, 0.46, 0.25. The iododichlorides are considered as salts of homopolar and internally ionized structures. Values of the dipole moment in excess of the vector sum are due to resonance effects. The dipole moments of certain compounds containing the carbonyl group. E. A. Shottova and Ya. K. Syrkin. *Ibid.* 690-90; cf. C. A. 33, 4839f.—The dipole moment of benzanthrene was found to be 3.49 D. in benzene at 25°; of chloranil 0.86 D. in dioxane at 25°. F. H. Rathmann

ASH-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM STUDIES IN
LONDON #2

RESEARCH DIVISION ONE
RESEARCH DIVISION TWO

ALPHABETICALLY BY AUTHOR
ALPHABETICALLY BY TITLE

CA 7

DETERMINATION OF THE MOISTURE CONTENT OF POWDERS BY THE DIELECTRIC METHOD. E. N. Gar'yanova. *Zashchita Lab.* 10, 560-72(1941); *Chem. Zvest.* 1943, 1, 1300. - The procedure for making measurements with a dielectrometer commonly used in the U. S. S. R. is described. The moisture content of a no. of pigments was detd. In making detns. of the moisture content of powders it was found that the finer the powder the higher its dielec. const. A temp. increase of 1° produced a change of 0.05-0.07 units in the dielec. const. The tightness of packing of the powder in the condenser also had an appreciable influence on the dielec. const. A moisture content of 1-15% could be detd. with an accuracy of 0.2-0.3%. The detn. required 3-5 min. M. G. M.

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION

FROM LIBRARY	TO LIBRARY
GROUP	GROUP
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
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1 2 3 4 5 6 7 8 9 10										1 2 3 4 5 6 7 8 9 10									

PROCESSES AND PROPERTIES INDEX

Dipole moments of aromatic sulfox compounds. E. N. Goryunova. *Acta Physicochim. U. R. S. S. R.* 1963 (1964).—See C. A. 58. 3700

2

1ST AND 2ND ORDERS										3RD AND 4TH ORDERS									
A B C D E F G H I J K L M N O P Q R S T U V W X Y Z										A B C D E F G H I J K L M N O P Q R S T U V W X Y Z									
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1ST AND 2ND CHARACTERS		3RD AND 4TH CHARACTERS		5TH AND 6TH CHARACTERS		7TH AND 8TH CHARACTERS		9TH AND 10TH CHARACTERS	
<p>PROCESSES AND PROPERTIES INDEX</p> <p>Dipole moments of aromatic sulfur compounds. R. N. Goshgarian. J. Phys. Chem. (U. S. S. R.) 15, 142-3 (1941).—Sept. data are given for the polarization at infinite diln., the electron polarization and the dipole moment of various sulfonic acids, sulfonic acid chlorides and sulfonamides. The values of $\mu \times 10^{18}$ found in benzene soln. are: benzenesulfonic acid, 3.77; benzenesulfonic acid chloride, 4.54; benzenesulfonamide, 4.78; p-toluenesulfonic acid chloride, 5.01; amide, 5.08; m-nitrobenzenesulfonic acid chloride, 4.12; p-nitrobenzenesulfonyl chloride, 4.55; m-sulfobenzene-sulfonic acid, 3.85; p-naphthalenesulfonyl chloride, 4.90; 1,5-di-(sulfobenzene)-naphthalene, 1.66; and in dioxane soln.: p-aminobenzenesulfonamide, 6.60; p-nitrobenzenesulfonamide, 4.51; p-naphthalenesulfonamide, 6.26; a-naphthalenesulfonamide, 5.14.</p> <p>P. H. Rathmann</p>									
<p>ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> <p>IRON DIVISION: 10000 11000 12000 13000 14000 15000 16000 17000 18000 19000</p> <p>STEEL DIVISION: 20000 21000 22000 23000 24000 25000 26000 27000 28000 29000</p> <p>NON-FERROUS DIVISION: 30000 31000 32000 33000 34000 35000 36000 37000 38000 39000</p> <p>WELDING DIVISION: 40000 41000 42000 43000 44000 45000 46000 47000 48000 49000</p>									

GUR'YANOVA, Ye. N.

USSR

Physico-Chemical Institute imeni L. Ya Karpov, Moscow
(-1941-)

"Valence States of Sulfur." Zhur. Fiz. Khim., Vol 17,
No1 2, 1943

BR 52059019

Determination of moisture by a dielectric method. E. N. Guryanova. *Zavodskaya Lab.* 13, 163 8(1947) (in Russian).—The moisture content of powders can be determined from the dielec. const. measured in a specially constructed condenser consisting of 2 concentric brass cylinders. The powder must be finely ground and sifted to a definite grain size to insure uniformly close packing which is made reproducible by the use of a known load on a piston attached to the condenser. Variation of the temp. by 1° corresponds to a change in the dielec. const. by 0.05–0.07. The method was applied to pigments contg. in addn. to the org. matter, 20–40% inorg. salts and 15% H₂O. Variation of the moisture content from 1 to 10% corresponded to a change of the dielec. const. from about 3 to about 7–10. The method is accurate to within 0.2–0.3%.

N. Thon

N. Thompson

GUR'YANOVA, E. N.

1A 1,154

USSR/Chemistry - Molecules
Chemistry - Sulfur chlorides

Apr 1947

"The Dipole Moments and the Structure of Organic Sulphur Chlorides," E. N. Gur'yanova, 11 pp

"Zhur Fiz Khim" Vol XXI, No 4, pp 411-421.

Technical discussion of measurements and results, with 22 tables of data. On the basis of the experimental and calculated data, a number of conclusions are drawn on the function of resonance structures in the composition of molecules, the position of the sulphochloride group in aromatic and naphthaline derivatives, the powerful retardation of free circulation of the sulphochloride group, and other structural problems.

14T94

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Dipole moments and structure of organic sulfonamides.
 B. N. Orl'yanova (Karpov Inst. Phys. Chem., Moscow).
 J. Phys. Chem. (U.S.S.R.) 21, 633-42 (1947) (in Russian);
 cf. C.A. 41, 6744a. The d. and the dielec. const. of
 dioxane solns. of 13 sulfonamides and of C_6H_5 solns. of 8
 sulfonamides were measured at 25°. The mol. refraction
 for 4 Bases (Li, Na, two Hg) of $PhSO_2NH_2$, $p-CH_3C_6H_4-$
 SO_2NH_2 , and $p-ClC_6H_4SO_2NH_2$ in $BtOH$ at 25° was detd.
 The mol. refraction for Na light of the other sulfonamides
 was calcd. From the dielec. const. and the mol. refraction
 the dipole moment μ (in 10^{-18} e.s.u.) was computed.
 The first of the following values of μ is for dioxane and the
 second, if present, for C_6H_5 solns.: $PhSO_2NH_2$, 5.09 and

4.73; $C_6H_5CH_2SO_2NH_2$, 4.63 and 4.02; $BzSO_2NH_2$, 4.02
 and 4.03; $p-CH_3C_6H_4SO_2NH_2$, 5.39 and 5.00; $p-ClC_6H_4-$
 SO_2NH_2 , 4.39 and 3.91; α -naphthalenesulfonamide 5.12;
 β -naphthalenesulfonamide 5.27; $p-BzC_6H_4SO_2NH_2$, 4.41;
 $p-IC_6H_4SO_2NH_2$, 4.80; $p-NH_2C_6H_4SO_2NH_2$, 8.62, $m-$
 $O_2NC_6H_4SO_2NH_2$, 4.90; 3-methyl-5-nitrobenzenesulfon-
 amide 4.48; and diphenylsulfide-4,4'-disulfonamide
 4.37. The m.ps. (corr.) of these compds. were 163, 104,
 194, 103 (uncorr.), 167, 187 (uncorr.), and 268°. The μ
 values in dioxane are by $0.4-0.6 \times 10^{-18}$ greater than in
 C_6H_5 ; hence the dioxane effect here is greater than for
 anilines. The rotation of the sulfonamide group seems to
 be much impeded. The angle formed by the vector
 $-SO_2NH_2$ with the axis of the C_6H_5 ring is about $40-50^\circ$.
 There is less resonance between the aromatic radical and
 the SO_2NH_2 group than between the aromatic radical and
 the SO_2Cl group. Reasons for this difference are sug-
 gested.
 J. J. Bikerman

GUR'YANOVA, Ye. F., prof.

Professor K.M. Deriugin. Vest. LGU 4 no. 3: 81-92 Ag. 110.

(MIRA 12:7)

(Deriugin, Konstantin Mikhailovich, 1878-1938)

117 AND 118 SERIES

PROCESSES AND PROPERTIES INDEX

7

CA

Dipole moments and vibrational spectra of sulfonic acids.
B. N. Gur'yanov and Ya. K. Sytkin. Zhur. Fiz. Khim.
25, 105-111(1950). Sp. gr., dielec. const., and μ at 4
wave lengths of solns. of PhSO₃H (I), o-MeC₆H₄SO₃H,
p-MeC₆H₄SO₃H (II), t-C₄H₉SO₃H, n-C₄H₉SO₃H,
C₆H₅SO₃H, m-O₂N-C₆H₄SO₃H, and o-ttOC₆H₄SO₃H
were detd. The dipole moments μ of these acids at 25°
in dioxane and benzene are: 3.76, 2.97; —, 3.02; 4.07;
3.32; 3.89; —; 3.98; —; 3.29, 2.18; 4.23, —; and 4.40,
 3.99×10^{-18} ; at 40° μ of II is 4.09 and 3.98, and μ of I is
3.23 in benzene. These values are in better agreement
with the structure R.SH(:O), than with R.S(:O).O.H.
The existence of a S—H bond is made probable also by the
Raman spectrum (line 2550–2560 cm.⁻¹ in solns. in diox-
ane, COMe, CCl₄, and H₂O) and the infrared spectrum
(absorption max. of solid acids at $3.9\text{--}4.0 \times 10^3$ cm.).
The μ is smaller in benzene than in dioxane, because the
acids are assoc. in C₆H₆ in which the cryoscopic mol. wt. is
about twice the theoretical mol. wt.; in dioxane the mol.
wt. is normal. The acids were dried over CaCl₂ for 2
days; decompn. took place on longer storage. The cor.
m.ps. of the acids are 81°, 80°, 86°, 102°, 104°, 94°, 97°
and 92°, resp.

J. J. Bickerman

Physicochem. Inst. in L. ya Kaysov, Moscow

ASAC-SLA METALLURGICAL LITERATURE CLASSIFICATION

SECOND EDITION

RELATIONSHIP

RELATIONSHIP

CA

2

Dipole moments of organic sulfones, sulfoxides, and disulfides. B. N. Guryanova (Karpov Inst. Phys. Chem., Moscow). *Zh. Fiz. Khim.* 34, 479-88 (1960); cf. C.A. 42, 3147h.—Dielec. const. and d , of solns. in C_6H_6 were detd. at 30°. The following dipole moments ($\times 10^{18}$) were calcd.: Et_2SO 3.85, Ph_2SO (m. 70.5°) 4.05, Et_2SO_2 (m. 72°) 4.47, $(n-C_4H_9)_2SO_2$ (m. 76°) 4.80, $(BuCH_2CH_2CHMe)_2SO_2$ (from sulfoxide + HNO_3) 4.52, $(i-C_4H_9)_2SO_2$ 4.81, $PhSO_2$ (m. 124.7°) 8.09, $Me_2C(SO_2)Me$, 1.20, $(i-C_4H_9)_2SO_2CH_2$ 4.30, $(i-C_4H_9)_2SO_2CH_2CH_2$ 4.52, $Me_2C(CH_2SO_2CH_2)_2$ 4.11, $(p-NO_2C_6H_4)_2CMe$ 4.15, $BuSO_2CH_2CMe$ 4.30, $(i-AmSO_2CH_2)_2CMe$ 4.41, $(BuSO_2CH_2)_2C$ 3.20, $(PhSO_2)_2$ (m. 193°) 4.01, $(p-MeC_6H_4)_2$ (m. 48.8°) 3.40, $(PhS)_2$ (m. 80.3°) 1.90, $(p-BrC_6H_4)_2$ (m. 98.7°) 0.74, and $MeC(CH_2Br)_2$ (b.p. 104°) 1.83. $(p-O_2NC_6H_4)_2$ (m. 184°) was studied in dioxane solns. and showed dipole moment of 4.31×10^{-18} . The above values are used to discuss the structure of sulfones, etc.

J. J. Hiskman

CA

Dipole moments of pyrrole derivatives. B. N. Abramova, I. A. Yanovskaya, and A. P. Terent'ev (Leningrad State Univ., Moscow). *Zhur. Fiz. Khim.* 25, 807 (1951).—Dipole moments of pyrrole deriva. in CCl₄ soln. at 25° are measured. The results (in Debye units) are: 2,5-dimethylpyrrole 2.09; 1,3,5-trimethylpyrrole 2.08; 1-phenyl-2,5-dimethylpyrrole 1.90; 1-*p*-nitrophenyl-2,5-dimethylpyrrole 2.50; 2,4-dimethylpyrrole 1.75; 1-phenylpyrrole 1.61; 1-acetylpyrrole 2.58; 3-methylpyrrole 1.80; 1-phenyl-2-methylpyrrole 1.94. Thus, in the pyrrole ring, the dipole has the direction (N-ring) opposite to that in amines. Also, the electronegativity of C atoms in N-substituted pyrrole deriva. is larger than in pyrrole itself. This explains some chem. properties of pyrrole deriva. (Cowley and Partington, *C.A.* 28, 909; Bross and Wilson, *C.A.* 30, 2339).

Michel Bondart

PA 239T11

USSR/Chemistry - Isotopes

Aug 52

"Investigation of the Interconversion of Diethyl Disulfide and Diethyl Trisulfide With the Aid of a Radioactive Isotope of Sulfur," Ye. N. Gur'yanov, Corr Mem Acad Sci USSR, Ye. K. Syrkln; and L. S. Kuzina

"DAN SSSR" Vol 85, No 5, PP 1021-1024

Org polysulfides of the type $R-S_n-R$ easily take on another atom of S giving compts of a higher order. It is not known at what position the S becomes attached in the mol. With the aid of radioactive S³⁵,
239T11

this question has been settled. The S atom goes in between the two S atoms in the S-S group and not between R-S.

GUR'YANOV, YE. N.

239T11

USSR/Chemistry - Isotopes

1 Sep 52

"The Reaction of the Exchange of Sulfur Atoms in Polysulfides," Ye. N. Gur'yanova, Ya. K. Syrkina, Corr Mem, Acad Sci USSR, L. S. Kuzina

"Dok Ak Nauk SSSR" Vol 86, No 1, pp 107-110

The equivalence of sulfur atoms in diethyltetrasulfide and the inorg polysulfides $\text{Na}_2\text{S}_2\text{S}_3$ and Na_2S_4 was studied using radioactive S^{35} . Diethyltrisulfide was treated with radioactive elemental sulfur to obtain tagged diethyltrisulfide. This was then decomposed 1st to diethyltrisulfide

234T19

and then to diethyldisulfide. The diethyltrisulfide was radioactive but not the diethyldisulfide. In the inorg polysulfides, all of the sulfur atoms were about equal in radioactivity.

GUR'YANOVA, YE. N.

234T19

GURYANOVA, E. N.,

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 10/26

Authors : Guryanova, E. N., and Vasilyeva, V. N.

Title : Exchange of RS groups in polysulfides

Periodical : Zhur. fiz. khim. 28/1, 60-66, Jan 1954

Abstract : It was established, by means of the radioactive S35 isotope, that the exchange of neutral S-atoms between polysulfides - diethyltrisulfide - diethyltetrasulfide; diethyltrisulfide (dithiolyltrisulfide) takes place not as result of the S-atom migration from one polysulfide molecule into another but as results of the exchange of the RS groups. The conditions leading to the exchange of RS groups were investigated in various polysulfide systems and it was found that the radical does affect the mobility of the RS groups. The effect of ultraviolet radiation on the exchange of the RS groups between polysulfides, disulfides and thiols, is explained. Five references : 3-USSR and 2-USA (1948-1954).

Institution : The L. Ya. Karpov Physico-Chemical Institute, Moscow

Submitted : March 5, 1953

GURYANOVA, E. H.

USSR/ Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 11/26

Authors : Guryanova, E. H.

Title : Certain sulfur exchange reactions

Periodical : Zhur. fiz. khim. 28/1, 67-72, Jan 1954

Abstract : Qualitative data are presented regarding the reaction of sulfur exchange between certain sulfur-containing compounds and elementary sulfur. It is shown that many organic compounds marked with the radioactive S^{35} isotope can be easily prepared by utilizing the exchange reaction with elementary S. The effect was determined of the radical on the ability of the S-atom in R - S bonds to exchange with elementary S. The percentage of S-exchange was determined by the activity ratio of the basic S and the S obtained after exchange and by the activity of the S in the compound obtained. Tables.

Institution: The L. Ya. Karpov Physico-Chemical Institute, Moscow

Submitted : March 5, 1953

GUR'YANOVA E. N.

USSR/ Chemistry Physical chemistry

Card : 1/1 Pub. 147 - 21/25

Authors : Vasilyeva, V. N., and Guryanova, E. N.

Title : The structure of 2-mercaptobenzthiazole and some of its derivatives

Periodical : Zhur. fiz. khim. 28/7, 1319 - 1326, July 1954

Abstract : The structure of 2-mercaptobenzthiazole and some of its derivatives - 2-chlorobenzthiazole, 2-hydroxybenzthiazole of 2-mercaptobenzthiazole - was determined by measuring the dipole moments and by the infrared spectroscopy method. The results are shown in tables. Two references: 1 USA and 1 USSR (1937 and 1942). Graphs.

Institution : The L. Ya. Karpov Physico-Chemical Institute, Moscow

Submitted : December 20, 1953

USSR/Chemistry - Physical chemistry

Card 1/1 : Pub. 147 - 5/27

Authors : Guryanova, E. N., and Kuzina, L. S.

Title : Kinetics and mechanism of sulfur interchange reaction between tetramethylthiuramdisulfide and elementary sulfur

Periodical : Zhur. fiz. khim. 28/12, 2116-2128, Dec 1954

Abstract : The S interchange reaction between tetramethylthiuramdisulfide and elementary S was investigated in the following solvents: benzene, toluene, xylene, mesitylene, decalin, naphthalin, glycerin, dibutylphthalate and tricresyl phosphate. It was found that 4 S atoms interchange in tetramethylthiuram-sulfide, the thermal dependence of the rate of interchange reaction does not respond to the Arrhenius equation and that the rate of reaction was found to be proportional to the square root of the tetramethylthiuramsulfide concentration. It was also established that tetramethylthiuramsulfide enters into interchange reaction with elementary S in the form of radicals. The presence of a sulfur association in the solutions was established cryoscopically at 120 - 130°. Eleven references ; 6 USSR; 4 USA and 1 Italian (1930-1954). Tables; graphs.

Institution : The L. Ya. Karpov Scientific Research Physico-Chemical Institute, Moscow

Submitted : January 15, 1954

GUR'YANOVA, E.N.; KAPLUNOV, M.Ya.

Synthesis of 2-mercaptobenzothiazole and its derivatives tagged
with sulfur isotope S35. Dokl.AN SSSR 94 no.1:53-56 Ja '54.
(MLRA 7:1)

(Benzothiazole) (Sulfur--Isotopes)

GURYANOVA, E. N.

USSR/ Chemistry - Physical chemistry

Card 1/1 : Pub. 22 - 16/41

Authors : Guryanova, E. N.

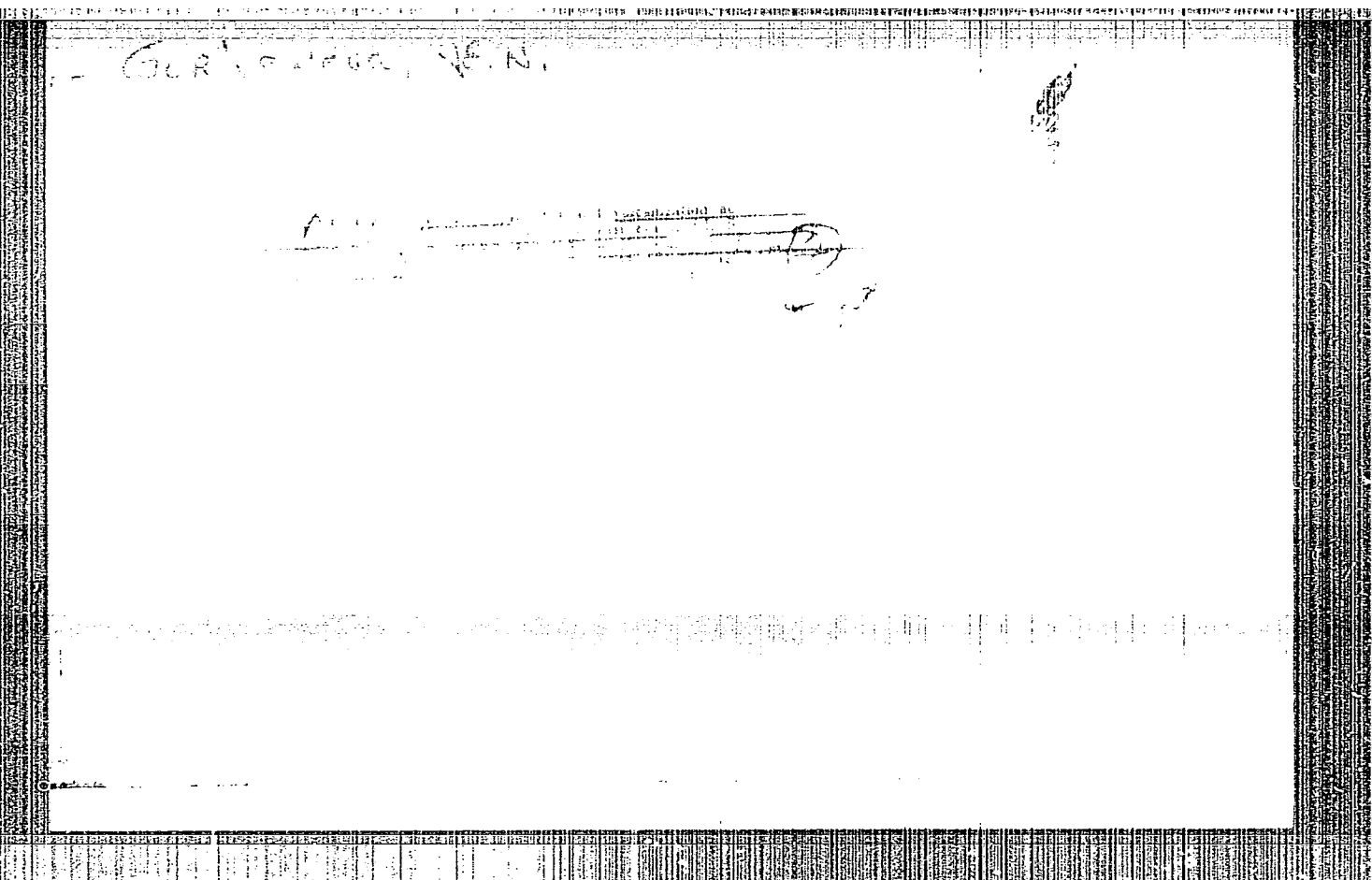
Title : Kinetics of sulfur interchange reaction between 2-mercaptobenzthiazole and elementary sulfur

Periodical : Dok. AN SSSR 98/2, 229-232, Sep 11, 1954

Abstract : The kinetics of S-interchange reaction between 2-mercaptobenzthiazole and elementary S in a solution, were investigated at various S-concentrations and 130 - 180° temperatures. The interchange reaction process was observed by the appearance of radioactive S-atoms in the Captax. Removal of the Captax from the reaction mixture was carried out by treating the latter with a 5% sodium hydroxide solution. The results obtained are graphically represented. It was established that the rate of S-interchange reaction between Captax and elementary S is determined not by the tautomeric conversion of the Captax but by the rate of radical formation. Three USSR references (1941-1954). Tables; graphs.

Institution : The L. Ya. Karpov Physico-Chemical Institute

Presented by : Academician V. A. Kargin, July 3, 1954



GUR'YANOVA, E. N.

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CH SULPHUR EXCHANGE IN POLYSULPHIDES AND
VULCANIZATION ACCELERATORS, E. N. GUR'YANOVA,
V. N. Vasil'eva, and L. S. Kuzina, p.270-300 in Meetings of
the Division of Chemical Sciences, Session of the Academy
of Sciences of the U.S.S.R. on the Peaceful Use of Atomic
Energy, July 1-5, 1955. Moscow, Publishing house of the
Academy of Sciences of the U.S.S.R., 1955. 378p. (in
Russian)

2 may

The radioactive sulfur isotope S^{32} was used in the work to find out the influence the structure of molecules exerts on the mobility of sulfur atoms in the bonds S—S, C—S, C=S of organic polysulfides and a number of other compounds, including vulcanization accelerators. (auth)

(2)

for

Gurijanova, V. A.

24

Name: GUR'YANCVA, Yelena Nikolayevna

Dissertation: Isotopic exchange and the structure of
organic sulphur compounds

Degree: Doc Chem Sci

Affiliation: [not indicated]

Defense Date, Place: 28 Jun 56, Council of Sci Res Physico-
Chemical Inst imeni Karpov

Certification Date: 7 Sep 57

Degree: BMVO 22/57

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 970

Author: Vasil'yeva, V. N., and Guryanova, Ye. N.

Institution: None

Title: Synthesis of Mercaptans and Disulfides Using Tagged Sulfur Isotopes

Original

Periodical: Zh. obshch. khimii, 1956, Vol 26, No 3, 677-684

Abstract: The synthesis of the following compounds containing radioactive S^{35} is described: C_4H_9SH (I), $C_6H_5C_2H_5SH$ (II), $p-CH_3C_6H_4SH$ (III), $(p-CH_3C_6H_4S)_2$ (IV), $p-CH_3OC_6H_4SH$ (V), $(p-CH_3OC_6H_4S)_2$ (VI), $p-C_6H_5C_6H_4SH$ (VII), C_2H_5OCSSK (VIII), $(C_2H_5S)_2$ (IX), $(C_4H_9S)_2$ (X), $(C_6H_5CH_2S)_2$ (XI), $(p-NO_2C_6H_4S)_2$ (XII), $(C_6H_5S)_2$ (XIII), and $(p-C_6H_5C_6H_4S)_2$ (XIV). I and II are prepared by reacting $n-C_4H_9Br$ and $C_6H_5CH_2Cl$ with alcoholic $NaHS^{35}$. The latter reagent is prepared either by passing H_2S^{35} through alcoholic C_2H_5ONa or by dissolving the tagged sulfur in alcoholic C_2H_5ONa , followed by passing a stream of ordinary H_2S through the solution. The respective halide is

Card 1/3

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 970

Abstract: carefully added to an alcoholic solution of NaHS^{35} (5 gms of Na in 100 ml alcohol) and the solution heated 2-3 hours over a water bath. The reaction mixture is poured into water, the mercaptan which separates is collected and distilled. All the steps in the preparation of NaHS^{35} are carried out in an atmosphere of N_2 . The yield of I is 80-90%, of II, 75%. III is prepared by the method developed by Tits-Skvortsov and co-workers (Referat Zhur - Khimiya, 1954, 32374); the yield is 20-25%. IV is a side-product of the synthesis of III, and can also be synthesized by the oxidation of III with $\text{K}_3\text{Fe}(\text{CN})_6$ in alkaline medium. The yield of IV prepared by the latter method is about 90%. V is prepared from III and $\text{p-CH}_3\text{OC}_6\text{H}_4\text{N}_2\text{Cl}$; the intermediate p-methoxyphenylethyl xanthate is cleaved with alcoholic KOH. The yield of V is about 70%, bp 89-90/4-5 mm Hg. The oxidation of V by $\text{K}_3\text{Fe}(\text{CN})_6$ yields VI. VIII was prepared as follows: alc. $\text{Na}_2\text{S}^{35} + \text{CS}_2 \rightarrow \text{Na}_2\text{CS}_3^{35} - \text{H}_2\text{S}^{35} + \text{CS}_2^{35} + \text{NaCl}$; $\text{CS}_2^{35} + \text{C}_2\text{H}_5\text{OK} \rightarrow \text{VIII}$. All reactions are carried out under an atmosphere of N_2 . It has been established by special experiments that all 3 S atoms in $\text{Na}_2\text{CS}_3^{35}$ are equivalent. VII is prepared in 70% yield by the reduction of XIV with Zn dust and H_2SO_4 . XIV is prepared from p-diphenyldiazonium

Card 2/3

USSR/Organic Chemistry - Synthetic Organic Chemistry, E-2

Abst Journal: Referat Zhur - Khimiya, No 1, 1957, 970

Abstract: chloride by the same method as V. The hydrolysis of the intermediate diphenylethyl xanthate yields XIV instead of the corresponding mercaptan. IX is prepared as follows: $\text{Na}_2\text{S} + \text{S}^{35}\text{C}_2\text{H}_5\text{OH} \xrightarrow{\text{Na}_2\text{S}_2^{35}} \text{Na}_2\text{S}_2^{35} + 2\text{C}_2\text{H}_5\text{I} \xrightarrow{\text{C}_2\text{H}_5\text{OH}} \text{C}_2\text{H}_5\text{S}^{35}\text{S}^{35}\text{C}_2\text{H}_5 + 2\text{NaI}$. The yield of IX is about 80%. A similar method can be used in the preparation of X from n-butylbromide, XI from benzene in 90% yields, and XII from p-chloronitrobenzene in 40-50% yields. XII occurs in 3 crystalline forms. The authors have separated the form melting at 179°. XIII is prepared by adding an ether solution of $\text{C}_6\text{H}_5\text{MgBr}$ with constant cooling to an ether solution of $\text{S}_2^{35}\text{C}_2$ and decomposing the complex which is formed with aqueous HCl; the yield is 30%, bp 190-195°/10 mm, mp 60.5°. Diphenylsulfide is formed as a side-product and can be separated by vacuum distillation. The compounds described were prepared in quantities of the order of a tenth of a gram with activities of 1-5 microcuries.

Card 3/3

GUR'YANOVA, E. N.

Synthesis of mercaptans and disulfides labeled with
radioactive sulfur. V. N. Vasil'eva and E. N. Gur'yanova.
J. Gen. Chem. U.S.S.R. 26, 777-83 (1956) (English transla-
tion).—See C.A. 50, 14015c.

M

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GUR'YANOVA, YE. N.

Dipole moments of dithiocarbamic acids. E. N. Gur'yanova and L. S. Kuzina (L. V. Karpov Physicochem. Inst., Moscow). *Zhur. Fiz. Khim.* 30, 610-28 (1956); cf. *CA* 50, 10495b. — The values of dipole moments found for the different dithiocarbamates were: tetramethylthiuram monosulfide, 3.29; tetramethylthiuram disulfide, 2.24; tetramethylthiuram trisulfide, 4.86; tetramethylthiuram tetrasulfide, 5.78; tetra-n-butylthiuram disulfide, 2.40; diphenyldimethylthiuram disulfide (sym.), 2.55; tetraphenylthiuram disulfide, 3.4; diisopropylxanthosylsulfide, $C_6H_5OC(S)SSC(S)OC_6H_5$, 3.83; ethyl dimethyldithiocarbamate, 3.22; ethyl dibutyldithiocarbamate, 3.25; ethyl phenyldithiocarbamate 3.20; ethyl diphenyldithiocarbamate, 3.12; 2,4-dinitrophenyl dimethyldithiocarbamate, 5.31; 1-piperidinecarbodithioic acid piperidine salt, 2.48; diphenyldithiocarbamic acid, 4.65; Na diisobutyldithiocarbamate, $Bu_4NCSSNa$, in benzene 3.86; the same in dioxane 4.0; Pb butyl mercaptide $(BuS)_2Pb$, 4.57; Zn diethyldithiocarbamate, $[Et_2NCSS]_2Zn$, 1.89; Ni diethyldithiocarbamate, $[Et_2NCSS]_2Ni$, 1.94; Pb diethyldithiocarbamate, $[Et_2NCSS]_2Pb$, 2.88; Bi diethyldithiocarbamate, $[Et_2NCSS]_3Bi$, 4.66. Conclusions about the structure of some of the compds. were drawn by comparing the exptl. values for the moments with the values from the vectorial sums. An approx. evaluation was made of the S-metal polarity in some of the compds. The use of infrared spectroscopy and the dipole moments showed that the structure of dicarbamic acids with amines is different under different conditions. 1-Piperidinecarbodithioic acid piperidine salt in the solid state and in solns. in nonpolar solvents has the mol. structure of dithio acids with amine, S-H acid bond retained in it, also the N-H amine bond. Upon soln. in water the S-H bond disappears, and an amine salt is formed.

W. M. Sternberg

79-28 3-59/61

AUTHOR: Gur'yanova, Ye. N.

TITLE: According to the Order of Discussion (V poryadke diskussii).
On the Works by L. M. Litvinenko, R. S. Cheshko, S. V. Tsukerman, A. D. Gofman, B. M. Kolesnikova et al. 'Spatial Structure and Reactivity' (O rabotakh L. M. Litvinenko, R. S. Cheshko, S. V. Tsukermana, A. D. Gofmana, B. M. Kolesnikovoy i dr. "Prostranstvennoye stroyeniye i reaktivnaya sposobnost' ")

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 3, pp. 839-839 (USSR)

ABSTRACT: This is a critical comment of the author on the works of the above mentioned authors given in references 1,2,3. The statements of these authors are refuted that, owing to their findings, the molecular systems of diphenyloxide and diphenylsulfide are better conductors of the electronic reaction of substituents than the system of biphenyl, where the rings, different from the above systems, are directly connected among each other. According to the experimental results of the author these authors had not taken into account the differences in spatial chain configuration of the derivatives of biphenyl as

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According to the Order of Discussion. On the Works by 79-28 5-19/61
 L. M. Litvinenko, R. S. Cheshko, S. V. Tsukerman, A. D. Gofman, B. M.
 Kolesnikova et. al. "Spatial Structure and Reactivity"

well as the angular configuration of diphenyloxide and diphenylsulfide. The important decrease of the reaction rate in 4 ' nitro derivatives compared with nonsubstituted compounds could, however, in the case of diphenyloxide and diphenylsulfide be dependent on steric hindrances. Apparently the observed decrease of the reaction rate in disubstituted compounds of diphenyloxide and diphenylsulfide, compared with the monosubstituted ones, was increasingly dependent on the steric factors and not on the conditions of the transfer of interaction of the substituents. The absorption spectra with- in the ultraviolet light, the dipolar moments and other physical and chemical data point to the transfer of interaction of the substituents through the sulfur atoms in aromatic compounds being rendered more difficult. The configuration shown by the x-ray structural analysis of 4,4'-dibromodiphenylsulfide did not correspond to the assumed transfer of interaction of the substituents from one ring to the other. For the solution of this problem a wider scope of physical methods and a more versatile investigation of similar molecules would be necessary.

Card 2/3

According to the Order of Discussion. On the Works by 79-28-3-55/61
I. M. Litvinenko, R. S. Cheshko, S. V. Tsukerman, A. D. Gofman, B. M.
Kolesnikova et. al. "Spatial Structure and Reactivity"

There are 4 references, 3 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut imeni L. Ya. Karpova
(Physical Chemical Institute imeni L. Ya. Karpov)

SUBMITTED: November 23, 1957

Card 3/3

AUTHORS: Grishko, N. I., Gur'yanova, Ye. N. 79-28-5-39/69

TITLE: Isotopic Conversion of Sulfur in Salts of Organic Thiosulfo Acids (Izotopnyy obmen sery v solyakh organicheskikh tiosul'fokislot)

PERIODICAL: Zhurnal Obshchey Khimii, 1958, Vol. 28, Nr 5, pp. 1287 - 1295 (USSR)

ABSTRACT: In continuation of Russian and foreign works on the isotopic conversion of sulfur in salts of organic thiosulfo acids this investigation was carried out in order to determine in more detail the basic rules which fix the convertibility of sulfur in sulfur salts, to investigate them and to explain the mechanism of these conversions. The hitherto-not-investigated group/salts of different thiosulfo acids $R-SO_2SM_2$ was taken as experimental object. The derivatives of these acids are widely used in chemical practice as intermediate products in the synthesis of dyes, pharmaceutical preparations, etc.

Card 1/3 For this reason the investigation of the nova-

Isotopic Conversion of Sulfur in Salts of
Organic Thiosulfo Acids

79-28-5-39/69

bility of the sulfur in these compounds is of great interest. The authors hope to achieve experiences on the influence of some factors on the velocity of isotopic conversion, factors of structural kind (for explaining the structure and reactivity of this compound) and of external kind (solvents, temperature). The isotope of the sulfur S^{34} was used for the experiments. Thus the conversion of different thiosulfo acids RSO_2 with elementary sulfur S^{35} in toluene alcohol solutions at various temperatures was investigated. On this occasion the activity energy of the conversions was determined. The important influence of the radical and of the metal on the convertibility of the salts is shown; special attention was paid to its composition and structure. The electric conductivity of a number of thiosulfosalts was calculated in the toluene alcohol mixture at various concentrations of salts as to the degree of dissociation. The reaction mechanism of the conversion of sulfur in thiosulfosalts was discovered.

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Isotopic Conversion of Sulfur in Salts of
Organic Thiosulfo Acids

79-28-5-39/69

There are 3 figures, 6 tables and 13 references, 7 of
which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut
imeni Karpova, Dnepropetrovskiy gosudarstvenny universi-
tet (Scientific Physical-chemical Research Institute imeni
Karpov and Dnepropetrovsk State University)

SUBMITTED: January 21, 1957

Card 3/3

SOV/79-28-7-7/64

AUTHORS: Gur'yanova, Ye. N., Yegorova, L. A.

TITLE: Accelerating Effect of Amines on the Isotopic Conversion of Sulfur in Organic Polysulfides (Uskoryayushcheye deystviye aminov na izotopnyy obmen sery v organicheskikh polisul'fidakh)

PERIODICAL: Zhurnal obshchey khimii, Vol 28, Nr 7, pp. 1745 - 1752 (USSR)

ABSTRACT: In the present paper the authors attempted to determine the activity of various amines by investigating the isotopic conversion of sulfur between the organic polysulfides and elementary sulfur. Apparently the mechanism of the effect of the activity of the amines on sulfur and the polysulfides of the RS - SR systems (Refs 1-9) is the same so that the isotopes of sulfur may be regarded as model. Polysulfides were taken for the solution of this problem, in which the sulfur conversion takes place under relatively strict conditions, i.e. dibenzyl trisulfide and diethyl trisulfide. Earlier (Ref 10) the author had shown that the sulfur atom best suited for conversion in these polysulfides is only the middle one:

Card 1/3 $RS - S - SR + S^* \longrightarrow RS - S^* - SR + S$. The addition of some amines

Accelerating Effect of Amines on the Isotopic Conversion SOV/79-28-7-7/64
of Sulfur in Organic Polysulfides

causes a considerable change of the conditions of sulfur conversion in these compounds, which made possible the comparison of the activity of various amines. Thus the influence exerted by the composition and the structure of the amines on the acceleration of the reaction of the isotopic conversion of sulfur between dibenzyltrisulfide and radioactive sulfur, as well as between diethyltrisulfide and the latter was investigated. The accelerated conversion effect of 26 different compounds was investigated, a great number of which is to be found as accelerators in the vulcanization of rubber. The cyclo-pentamethylene dithiocarbamate of piperidine and the diisobutyl dithiocarbamate of sodium (known as accelerators in the vulcanization process of rubber) are active accelerators in the conversion. The captax and thiuram (kaptaks, tiuram) used in the vulcanization at high temperatures do not accelerate the conversion. There are 3 tables and 12 references, 8 of which are Soviet.

SUBMITTED: June 1, 1957
Card 2/3

Accelerating Effect of Amines on the Isotopic Conversion of Sulfur in Organic Polysulfides SOV/79-28-7-7/64

1. Sulfur isotopes--Production (Radioactive)--Production
2. Amines--Chemical effects
3. Sulfur isotopes
4. Chemical reactions--Velocity

Card 3/3

5(4)

AUTHORS:

Gur'yanova, Ye. N., Kuzina, L. S.

S07/76-32-10-12/39

TITLE:

Isotopic Exchange of Sulfur in the Salts of Dithiocarbamic Acid (Izotopnyy obmen sery v solyakh ditiokarbaminovykh kislot)

PERIODICAL:

Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 10, pp 2301-2307 (USSR)

ABSTRACT:

The influence of the composition and the structure of the compounds mentioned in the title on the mobility of sulfur as well as on the exchangeability of these compounds were systematically investigated. Purely qualitative experiments were carried out to determine the conditions of exchange and the number of sulfur atoms that can be exchanged, and to carry out measurements of some exchange reactions in different solvents. The method of synthesis and purification of the preparation was described earlier (Ref 5). The isotopic exchanges of sulfur in the cyclopentamethylene dithiocarbamate of piperidine, in sodium-di-iso-butyl dithiocarbamate, in the diethyl dithiocarbamates of lead, bismuth, zinc and nickel as well as diphenyl dithiocarbamic acid were investigated. The velocity constants of the isotopic exchange were calculated according to an equation

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SOV/76-32-10-12/39

Isotopic Exchange of Sulfur in the Salts of Dithiocarbamic Acid

given. Although the sulfur atoms are structurally differently bound ($C=S$ and $C-S-Me$) in the compounds investigated they still have the same exchangeability. In contrast to Thiuram and its salts only one sulfur atom is exchanged in the dithiocarbamic esters $R_2N-CS-SR'$. It was found that in the different salts of

this acid the exchangeability of sulfur depends to a high degree on the nature of the salt. Whereas an exchange with elementary sulfur in sodium salts takes place at 50-60°, a temperature of 120° is necessary with lead and bismuth salts, one of 140-150°C with zinc diethyl dithiocarbamate, and one of 170-180°C with nickel salt. These differences in exchangeability are explained by the dissociation capability with ions at the sulfur - metal bond. Experiments on the influence of the solvent on the isotopic exchange of elementary sulfur and some salts of dithiocarbamic acid showed that the exchange depends on the capability of dissociation of the solvent. This fact is especially important, as compounds of the type investigated are used as active accelerators in rubber vulcanization. There are 1 figure, 3 tables, and 10 references, 10 of which are Soviet.

Card 2/3

SOV/76-32-10-12/39

Isotopic Exchange of Sulfur in the Salts of Dithiocarbamic Acid

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova, Moskva
(Institute of Physics and Chemistry imeni L. Ya. Karpov, Moscow)

SUBMITTED: May 3, 1957

Card 3/3

5(4)

AUTHORS:

Grishko, N. I., Gur'yanova, Ye. H.

SOV/76-32-12-11/32

TITLE:

The Dipole Moments and Vibration Spectra of Organic Thio-
sulfonates (Disulfonic Oxides) (Dipol'nyye momenty i kole-
batel'nyye spektry organicheskikh tiosul'fonatov (disul'-
foksidov))

PERIODICAL:

Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 12,
pp 2725 - 2730 (USSR)

ABSTRACT:

The antibiotic properties of these compounds have raised
a good deal of interest and, recently, there have been
quite a few indications that these compounds are not
disulfonic oxides ($R - \overset{\overset{O}{\parallel}}{S} - \overset{\overset{O}{\parallel}}{S} - R'$) but thiosulfonates

($R - \overset{\overset{O}{\parallel}}{S} - S - R'$). Apart from already known thiosulfonates

new compounds have been produced: ethylester of p-bromo-
benzene thiosulfonic acid and of β -naphthalene-thio-
sulfonic acid. The dipole moments of 12 compounds were

Card 1/2

The Dipole Moments and Vibration Spectra of Organic
Thiosulfonates (Disulfonic Oxides)

SOV/76-32-12-11/32

measured in benzene or dioxan at temperatures of 25° and 40° C. The Raman spectra of diethyl-sulfone and of the ethylester of ethylsulfonic acid were taken with the ISP -51 apparatus. These dipole moments showed bands corresponding to SO₂, but lacking the S-O bands. Thus, the thiosulfonate formula R-SO₂-S-R', also suggested by the dipole moments, is confirmed. There are 3 tables and 24 references, 8 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova, Moskva
(Physico-Chemical Institute imeni L. Ya. Karpov, Moscow)

SUBMITTED: July 31, 1957

Card 2/2

SCV/26-122-2-10/42

AUTHORS: Grishko, N. I., Gur'yanova, Ye. N.

TITLE: The Mobility of RS-Groups in Organic Thiosulphates
(Sulfone Sulfides:)(Podvizhnost' RS-grupp v organicheskikh
tiosul'fonatakh (sul'forsul'fidakh))

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol 122, Nr 2,
pp 235 - 237 (USSR)

ABSTRACT: Since several years discussions have been published
in technical literature on the structure of
"disulfoxides". Originally it was assumed that the
compounds mentioned in the title have the structure
R-SO-SO-R' (I). In the course of the last years it
was found that these matters have antibacterial and anti-
biotic properties (Refs 1,2) which considerably raised
the interest in them. A great number of new compounds
of this class were synthesized (Ref 3). An increasing
number of data is published which are in favour of the
structure R-SO₂-S-R' (II). Earlier (Ref 4) the authors
measured the dipole moments and the oscillation spectra
of a large group of thiosulfo. ethers and they drew
a conclusion on the structure (II) of the "disulfoxides".

Card 1/4

The Mobility of RS-Groups in Organic Thiosulphonates
(Sulfone Sulfides)

SOI/20-122-2-19/42

In the present paper they used for the first time the method of the **tagged** atoms. However, as had been expected the attempt to exchange isotopes between the thiosulfo ethers and the elementary radioactive sulfur was a failure. The results of the exchange of sulfur between thiosulfo ethers and disulfides are given in table 1. In all cases the activity of the precipitation was determined by benzidine sulfate. As it can be seen from table 1 an isotope exchange of sulfur takes place under certain conditions in all systems investigated. Experiments between thiosulfo ethers and the disulfide with different R have demonstrated that the radioactive sulfur isotope shifted from one molecule into another not because of the exchange between sulfur atoms but as a consequence of the exchange of the RS-groups. It was observed that the radioactive sulfur isotope shifted from the disulfide molecule into the thioether molecule together with the ethyl radical. In other words, an exchange between the RS-groups takes place. This is a very important proof for the

Card 2/4

The Mobility of RS-Groups in Organic Thiosulphonates
(Sulfone Sulfides)

307/20-122-2-19/42

configuration II of the thiosulfo ethers. The results of the present paper indicate that the thiosulfo ethers are capable to react not only with sulphydril but also with the disulfide groups of the compounds and apparently also with the disulfide bindings of the protein molecules. For this reason the mechanism of the antibacterial effect may be another one than that assumed earlier. There are 1 table and 7 references, 6 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut im. L.Ya.Karpova (Physico-chemical Institute imeni L.Ya.Karpov)

PRESENTED: April 28, 1958, by I.L.Knunyants, Member, Academy of Sciences, USSR

SUBMITTED: November 12, 1957

Card 3/4

5(4)

BOV/69-21-4-10/22

AUTHOR: Dogadkin, B.A., Eytingon, I.I., Fel'dshteyn, M.S., Tarasova Z.N.,
Gur'yanova, Ye .N., Lin Yang Ch'ih, Klausen, N.A. and Pevzner,
D.M.

TITLE: Vulcanization of Rubber in the Presence of Aminomethyl Deri-
vatives of 2-Mercaptobenzothiazole

PERIODICAL: Kolloidnyy zhurnal, 1959, Vol XXI, Nr 4, pp 427-435 (USSR)

ABSTRACT: The authors synthesized a number of compounds, condensation
products of 2-mercaptobenzothiazole and formaldehyde with various
amines, to test them as accelerators of vulcanization in mix-
tures of synthetic and natural rubbers. According to the data
of spectral analysis, the chemical structure of these 2-mercap-
tobenzothiazole derivatives is characterized by the presence
of a -S-C-N- group. The experiments proved that aminomethyl
derivatives of 2-mercaptobenzothiazole are effective accelera-
tors of the vulcanization process. Figure 3 (graph) shows the
vulcanizing activity of these derivatives in comparison with

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(3)

SOV/69-21-4-10/22

Vulcanization of Rubber in the Presence of Aminomethyl Derivatives of
2-Mercaptobenzothiazole

* the effect of sulfenamide accelerators. It was further found that vulcanization of rubber mixtures with aminomethyl derivatives is characterized by higher rates in the initial period as compared with vulcanization of mixtures containing sulfenamide accelerators. In comparison with the latter, aminomethyl derivatives enter into isotopic exchange with di-2-benzothiazolil-disulfide at lower temperatures (graphs 6 and 7). Aminomethyl derivatives of 2-mercaptobenzothiazole do not exert an independent structurizing (vulcanizing) effect on rubber (table 3). In this respect they differ from the sulfenamide compounds. There are 7 graphs, 3 tables and 7 Soviet references.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti,
Moskva (Scientific Research Institute of the Tire Industry,
Moscow)

SUBMITTED: 23 December, 1958
Card 2/2

5 (2,3)

AUTHORS:

Grishko, N. I., Gur'yanova, Ye. N.

SOV/79-29-3-27/61

TITLE:

Isotopic Exchange of Sulfur and Structure of the "Disulf-oxides" (Sulfonsulfides) (Izotopnyy obmen sery i stroyeniye "disul'foksidov" (sul'fonsul'fidov))

PERIODICAL:

Zhurnal obshchey khimii, 1959, Vol 29, Nr 3, pp 878-884 (USSR)

ABSTRACT:

Originally the structure $R-SO-SO-R'$ (I) was attributed to the "disulfoxides". In the last years the interest in these compounds increased due to the antibacterial and antibiotic properties discovered in them (Refs 1,2), which led to many new syntheses of this class (Ref 3). Recently, more and more purely chemical and physico-chemical data were presented which point to the sulfonsulfide or thiosulfonate (II) structure. In continuation of earlier experiments (Ref 4) on the thio-sulfo esters in the present paper the structure and the reactivity of the above mentioned compounds were investigated by means of radioactivated atoms which has hitherto not been carried out. The authors hoped to obtain by this method complementary data on the structure of the thiosulfo esters as well as on their reactivity with other compounds containing sulfur. The investigation of the reaction mechanism of the

Card 1/3

Isotopic Exchange of Sulfur and Structure of the
"Disulfoxides" (Sulfonsulfides)

SOV/79-29-3-27/61

thiosulfo esters with compounds containing the sulfhydryl and disulfide groups will not only be able to explain the influence exercised by the structure upon the reactivity but also to elucidate the mechanism of the antibacterial activity. On the strength of these considerations the work reported in this paper was carried out in three directions: 1) the isotopic exchange of sulfur between various thiosulfo esters and the elementary radioactive sulfur was investigated. 2) The exchange of the RS groups between various thiosulfo esters and radioactive disulfides was investigated. 3) Likewise the conditions of the reactions of thiosulfo esters with mercaptans were investigated. It was shown that the thiosulfo esters on heating up to 170° are not subject to isotopic exchange with the elementary radioactive sulfur. The isotopic exchange of the RS groups between the thiosulfo esters and the organic radioactive disulfides was determined. From this it was concluded to the sulfosulfide structure of the "disulfoxides". The influence exercised by the composition and the structure of the radicals upon the reactivity of the thiosulfo esters with disulfides and mercaptans was investigated. The results

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Isotopic Exchange of Sulfur and Structure of the
"Disulfoxides" (Sulfonsulfides)

SCV/79-29-3-27/61

concerning the isotopic exchange of sulfur between the esters of the thiosulfo acids and elementary sulfur are presented in table 1 and those between these esters and disulfides in table 2. A mechanism of the antibacterial activity of the sulfosulfides was suggested. There are 4 tables, and 9 references, 7 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut imeni L. Ya. Karpova i Dnepropetrovskiy gosudarstvennyy universitet (Physico-chemical Institute imeni L. Ya. Karpo\ and the Dnepropetrovsk State University)

SUBMITTED: February 8, 1958

Card 3/3

5(4)
AUTHORS: Vasil'yeva, V. N., Gur'yanova, Ye. N. SOV/76-33-9-14/37
TITLE: Dipole Moments and Structure of Disulphides
PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 9, pp 1976-1981 (USSR)
ABSTRACT: By the aid of the dipole moments which were determined for some disulphides (in benzene at 25°), an investigation was made of the position of the RS-group in the disulphides as well as of the influence exerted by composition and structure of the R-radicals on the stability of the space configuration; the purpose was to evaluate the possibility of a free or inhibited rotation of the RS-group around the S-S bond. The dipole moments of the following disulphides were measured: di-n-propyl-(1.98), di-n-butyl-(1.99), di-n-octyl-(1.99), di-n-myristyl-(1.97), di-n-octadecyl-(2.07), dibenzyl-(1.90), diallyl-(1.76), di-p-diphenyl-(2.20), di-p-nitrobenzyl-(4.97), di-p-methoxyphenyl-(3.11), di-2,4,5-trichlorophenyl-(1.15), p-methoxydibenzoyl-(2.50), dibenzoyl-(1.1), and dibenzoyl disulphide (1.1 at 40°C). Results are listed (Table 1), and compared with respective data from publications (Table 2). After considering the possibilities of molecular configuration of the disulphides,

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Dipole Moments and Structure of Disulphides

SOV/76-33-9-14/37

and after comparing the experimental values obtained for the dipole moments with those computed from the vector sum, the disulphides are found to exhibit a non-planar molecular configuration. This statement is in agreement with data of X-ray structural analysis of some compounds containing the S-S group (cf J. Toussaint, Ref 3). The ever constant value of the dipole moments in disulphides with different R-radicals shows that the C-S-S-C is formed in all compounds according to the same law; this may also be the reason explaining the non-planar configuration of polysulphides with several S-atoms. The main factor responsible for the non-planar twisted configuration of the disulphides and other polysulphides seems to be the mutual repulsion of the unsheared electron pairs at the sulphur atom. Hence, the question rises as to the possibility of transferring an interaction between atoms and radical groups in compounds of the type $X-C_6H_4-S-S-C_6H_4J$. There are 2 tables and 14 references, 2 of which are Soviet.

ASSOCIATION:
Card 2/3

Fiziko-khimicheskiy institut im. L. Ya. Karpova, Moskva

5(4), 21(1)

AUTHORS: Kuzina, L. S., Gar'yanova, Ye. N.

SCV/76-33-9-23/37

TITLE: Isotopic Exchange of Sulphur in Thiurams and Esters of Dithiocarbamic Acid

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 9, pp 2030 - 2035 (USSR)

ABSTRACT: Since the derivatives of dithiocarbamic acids have found wide application as vulcanization accelerators (VA), insectofungicides, and in medical preparations, an investigation of the mobility of the sulphur atoms of these compounds would be of some interest. This article is a continuation of previous investigations (Refs 3, 5-7). The influence exerted by several structural factors upon the exchangeability of sulphur in thiurams (I) and dithiocarbamic esters (II) was investigated here, and some problems were especially taken into account. Further, the authors investigated the isotopic exchange (IE) with elemental radioactive S on (I), (II), and isothiocyanates (altogether 15 compounds), and determined the number of exchangeable S-atoms in the compounds under investigation, as well as the optimum conditions of exchange. Activation energy was determined for seven compounds.

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Isotopic Exchange of Sulphur in Thiurams and Esters
of Dithiocarbamic Acid

SCV/76-33-9-23/37

The methods of synthesizing the preparations used as well as data on their properties have already been indicated. After (IE), the components were separated in different manner (selective dissolution, fractional vacuum distillation. The number of exchangeable S-atoms was determined from the ratio of activities of the components being in equilibrium; the results are listed (Tables 1-4). As the number of S-atoms in the polysulphide bridge of (I) increases, the rate of exchange (RE) with elemental sulphur rises. In tetramethyl thiuram tetrasulphide, the two central S-atoms are exchanged more easily, while the exchange of the four outer S-atoms (linked to carbon) is somewhat more complicated. However, the difference is not so great as to allow separate exchange. An exchange of the aliphatic radicals for phenyl radicals in thiuram disulphides causes a considerable deceleration of (RE). The radicals of the amino group exercise different influence upon the exchange in (I) and (II). It is assumed that (I), which possess more S-atoms, will be more active (VA) than (I) with a smaller content of S. In this connection, it is, however, necessary to take the solubility in rubber into account. Thiuram disulphides with aromatic radicals

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Isotopic Exchange of Sulphur in Thiurams and Esters
of Dithiocarbamic Acid

SOV/76-33-9-23/37

probably are less active (VA) than (I) with aliphatic radicals.
The scientists I. I. Kukhtenko, L. Ye. Bruksler, G. P. Miklukhin,
and A. I. Brodskiy are mentioned. There are 4 tables and 8
Soviet references.

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova g. Moskva
(Physico-chemical Institute imeni L. Ya. Karpov, City of Moscow)

SUBMITTED: February 28, 1958

Card 3/3

5(2,4)

SOV/20-125-3-27/63

AUTHORS:

Rodionov, A. N., Vasil'yeva, V. N., Talalayeva, T. V., Shigorin, D. N., Gur'yanova, Ye. N., Kocheshkov, K. A., Corresponding Member, AS USSR

TITLE:

Intermolecular Lithium Bond, Its Influence Upon the Vibration Spectra of Molecules and Upon the Dipole Moments
(Mezhmolekulyarnaya litiyevaya svyaz', yeye vliyaniye na kolebatel'nyye spektry molekul i dipolnyye momenty)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 125, Nr 3, pp 562-565 (USSR)

ABSTRACT:

In an earlier paper (Ref 1) the authors proved the formation of a bond referred to in the title $-\overset{-\delta}{\text{CH}_2}-\overset{+\delta}{\text{Li}}\cdots\overset{-\delta}{\text{CH}_2}-\overset{+\delta}{\text{Li}}$ (I) and $\text{R}-\text{O}-\text{Li}\cdots\text{O}-\text{Li}$ (II). The lithium bond like the hydrogen bond is a secondary chemical bond (Ref 2). Type (I) was closely investigated on the basis of infrared absorption spectra. In the work under review, infrared spectra of Alk-Li compounds with a varying length of the radical chain were solved in hexane and investigated at various concentrations. The aim was to clarify

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SOV/20-125-3-27/63

Intermolecular Lithium Bond, Its Influence Upon the Vibration Spectra of Molecules and Upon the Dipole Moments

the dependence of the intermolecular space, of the stability of the lithium bond and also of the magnitude of the frequency displacement of the groups C-Li on the length and on the structure of the carbon radical. Table 1 as well as figures 1 and 2 illustrate the results obtained. As may be observed therefrom, the value of the displacement of the said groups actually decreases with increasing chain length. Thus also the stability of the lithium bond in the complexes decreases. The investigation of the solutions of ethyl, n-butyl, and n-amyl lithium in hexane showed a linear course of the dependence of the dielectricity constant on the concentration in the case of lower concentrations. This course diverges from the straight line on an increase of concentration (0.4-3.0 mols %). The dipole moment of ethyl lithium in benzene remains constant between 0.08-0.43 mols % and amounts to 0.87 D. The variation of the dipole moment in the complex, connected with the formation of lithium, goes back on the whole to the action of this bond upon the type of orientation of the dipoles with respect to one another. Therefore, the formation of cyclic complexes and especially the type

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SOV/20-125-3-27/63

Intermolecular Lithium Bond, Its Influence Upon the Vibration Spectra of Molecules and Upon the Dipole Moments

of the "quadrupoles" must decrease the dipole moment. This apparently takes place in the ethyl lithium solutions in benzene. It follows from the above that alkyl lithium molecules are associated both in benzene and in hexane solutions. The character of the associate depends both on the nature of the solvent and on the radical composition. The lithium bond considerably influences the frequency variations of the vibrations of the C-Li groups and also the dipole moments of the complexes; these variations here depend on the radical length, on the concentration of the solutions, and also on the nature of the solvent. There are 2 figures, 1 table, and 3 references, 2 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im. L. Ya. Karpova (Scientific Physico-chemical Research Institute imeni L. Ya. Karpov)

SUBMITTED: December 29, 1958
Card 3/3

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AUTHORS: Vasil'yeva, V. N., Talalayeva, T. V., ~~Gur'yanova, Ye. N.~~,
and Kocheshkov, K. A.

TITLE: Dipole Moments of Organolithium Compounds of the Aliphatic
Series

PERIODICAL: Izvestiya Akademii nauk SSSR. Otdeleniye khimicheskikh
nauk, 1960, No. 9, pp. 1549-1552

TEXT: On the basis of published data (Refs. 1, 2, 3, 4, 5, 6), the authors measured the dipole moments of ethyl lithium, n-propyl lithium, n-butyl lithium, n-amyl lithium, and n-dodecyl lithium in hexane. Measurements were carried out at concentrations as low as possible, for which an association was unlikely, and concentration values at which association was determined by means of the cryoscopic method. Since all these compounds are extremely unstable, their syntheses, the preparation of the solutions and the measurements of the dipole moments were carried out in pure argon atmosphere. The authors describe the preparation of the solutions and the determination of their concentration by means of titration. The dipole

Card. 1/1

87118

Dipole Moments of Organolithium Compounds of
the Aliphatic Series

S/062/00/000/000/004/021
B023/B064

moments were measured at 25°C with the help of the pulsed method. The concentration of the solutions was 0.094-0.66 mole%. Tables 1 and 2 show the results. Table 3 shows the results of the measurements made at 0.6-7.5 mole%. The dipole moment μ was determined by the formula $\mu = 0.0127 \cdot 10^{-18} \sqrt{(P_{\infty} - P_E)T}$ (P_E = electron polarization of the substance).

It was 1.1 D for ethyl lithium concentrations of 0.12-0.62 mole%, for butyl lithium concentrations of 0.13-0.36 mole%, and for amyl lithium concentrations of 0.13-0.66 mole%. From the linear dependence of the dielectric constant of the solution on concentration (Table 1), and the constancy of the dipole moment value of all three compounds, it is concluded that in this range of concentration monomeric molecules are concerned, and that the value of the dipole moment for the compounds mentioned refers to the moment of the monomer. A deviation from the linear dependence is found when measuring the dielectric constant of alkyl lithium solutions in hexane at higher temperatures. The greatest deviation is observed in the range of concentration of from 0.62 to 3.27 mole%. This deviation and the reduction of the dipole moments is, in the authors' opinion, caused by the association of the molecules and the formation of

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Dipole Moments of Organolithium Compounds of
the Aliphatic Series

S/062/60/000/009/004/021
B023/B064

complexes. This is in agreement with the published data (Refs. 3,4, and 5). If the chain of the aliphatic radical is extended from ethyl to amyl, the degree of association of the alkyl lithium compounds decreases. This dependence will be subject of further investigations. The behavior of the alkyl lithium compounds in benzene solutions differs from the behavior of these compounds in hexane. The authors measured the dipole moment of ethyl lithium in benzene at 25°C and obtained 0.87 D in the concentration range of from 0.094-0.49 mole%. Apparently, lithium forms stable complexes in benzene solutions also in the case of comparatively low concentrations. There are 3 tables and 6 references: 3 Soviet, 2 US, and 1 German. X

ASSOCIATION: Fiziko-khimicheskiy institut im. L. Ya. Karpova (Physico-chemical Institute imeni L. Ya. Karpov)

SUBMITTED: March 7, 1959

Legend to Tables 1 and 3: c - concentration of the dissolved substance in mole%; ϵ - dielectric constant of the solution; d - density of the solution. 1) determination in hexane at 25°C, 2) ethyl lithium, 3) n-amyl lithium,

Card 3/5

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S/138/61/000/010/004/009

A051/A129

AUTHORS: Fel'dshteyn, M.S., Chernomorskaya, I.G., Eytngon, I.I., Gur'yanova, Ye.N., Dogadkin, B.A.

TITLE: Vulcanizing activity of certain derivatives of 2-mercaptobenzothiazole and their ability to exchange with radioactive di-2-benzothiazyl disulfide

PERIODICAL: Kauchuk i rezina, no. 10, 1961, 15 - 18

TEXT: The characteristic features are given of the vulcanization activity of certain N-benzothiazole-2-thion and 2-thiobenzothiazole derivatives, according to the kinetics of sulfur addition and the change in maximum swelling. The data which characterize this activity indicate that the S substituted derivatives do not affect the rate of vulcanization (the graph), nor the effectiveness of the structuralizing process. The weak effect of vulcanization which is noted is thought to be connected with the presence of sulfur in the rubber mixture. N-benzothiazole-2-thion derivatives are effective accelerators of vulcanization. The results of the investigation into the reaction between N-benzothiazole-2-thion and 2-thiobenzothiazole derivatives on the one hand, and labelled S³⁵ in

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28949

S/138/61/000/C10/C04/C09

A051/A129

Vulcanizing activity ...

di-2-benzothiazylidisulfide on the other hand are presented. The method of labeled atoms (S^{35}) is used to investigate the mobility of the thiobenzothiazolyl radicals in certain N-benzothiazole-2-thion derivatives and 2-thiobenzothiazole derivatives. The reaction scheme of exchange is given as follows:

X

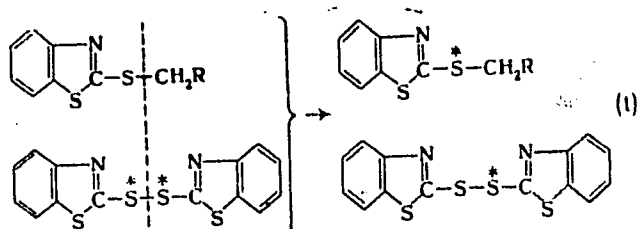
Card 2/6

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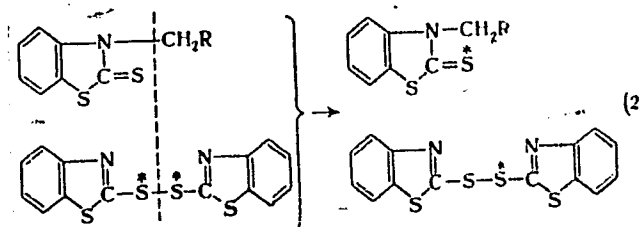
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Vulcanizing activity ...



(1)

or



(2)

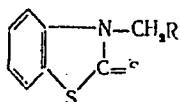
Card 3/6

Vulcanizing activity ...

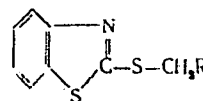
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AO51/A129

Experimental data showed that there is a direct link between the vulcanizing activity of the investigated compounds and their ability to exchange with the thiobenzothiazolyl radicals. The same elementary act - the formation of the thiobenzothiazolyl radicals - is the basis of both processes. The data of the vulcanizing activity and exchange ability are compared with the results of the structural investigation. It was established that the sharp differences in the vulcanizing activity of the investigated compounds are explained by a difference in their structure. The bond strength of $N-CH_2R$ in the compounds of the type



is less than the bond strength of $S-CH_2R$ in compounds:



It is pointed out that amongst derivatives of 2-mercaptobenzothiazole compounds characterized by the presence of the C-S-C grouping do not have an accelerating effect on the vulcanization process, whereas the corresponding sulfenamide C-S-N and disulfide C-S-S compounds are highly-active accelerators of vulcani:-

Card 4.5

Vulcanizing activity ...

28949

S/138/61/000/010/004/009

A051/A129

zation. These reactions of exchange by the thiobenzothiazolyl radicals may thus be used in the synthesis of the corresponding accelerators of vulcanization labelled with radioactive sulfur. There are 3 tables, 1 graph and 5 Soviet-bloc references.

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti (Scientific Research Institute of the Tire Industry)

X

Card 5/6

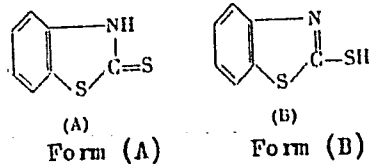
S/079/61/031/011/012/015
D202/D305

AUTHORS: Gur'yanova, Ye. N., Eytngon, I. I., Fel'dshteyn,
M. S., Chernomorskaya, I. G., and Dogadkin, B. A.

TITLE: Investigation of the structure of some 2-mercapto
benzthiazole derivatives by the method of dipole
moments

PERIODICAL: Zhurnal obshechey khimii, v. 31, no. 2, 1961, 3709-3712

TEXT: The subject of this experimental work was to establish the
cause of differences in the behavior of mercapto benzthiazole (MDT) deri-
vatives as vulcanization accelerators. It is known that the thiazol
group of MBT may have a twofold structure:




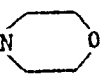
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Therefore, derivative groups may be linked either with N or with S. In the authors' opinion, the best method of ascertaining to which tautomeric form a particular derivative belongs is to determine its dipole moment--as the dipole moment of the form (A) ≈ 4.5 D, and that of form (B) ≈ 2.2 D. The authors synthesized 12 MBT derivatives by adding the following groups: I - $\text{N}-\underset{\text{H}}{\text{C}}\text{H}_6\text{H}_{11}$, II - $\text{N}(\text{C}_6\text{H}_{11})_2$, III - $\text{N}-\underset{\text{H}}{\text{C}}\text{H}_6\text{H}_5$ ✓

IV - $\text{N}-\underset{\text{CH}_3}{\text{C}}\text{H}_6\text{H}_5$, V - N , VI - CH_3 , VII - $\text{CH}_2-\text{N}-(\text{CH}_3)_2$,

VIII - $\text{CH}_2\text{N}(\text{CH}_2\text{H}_5)_2$, IX - CH_2-N , X - CH_2OH ,

XI - $\text{CH}_2-\text{CH}_2\text{OH}$, XII - CH_2COOH ; and determined their dipole mo-

ments. They found that in compounds I - V, the dipole moments were in the range 1.73 - 3.01 D, these fluctuations being due to different dipole moments of the added amino groups. The compound VI has a small moment equal to

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1.33 D; therefore, all these groups are linked with S, and the derivatives have the (B) structure. In compounds VII - X, the dipole moments were in the range 4.38 - 4.72 D; therefore, the addition groups are linked to N, and the compounds have the (A) structure. The authors do not discuss the accelerating properties of all derivatives and only point to the fact that X---a hydromethyl---and XI---a hydroethyl derivative---having quite different properties as accelerators have different dipole moments as well. X has 4.58 D and XI---2.33 D, the first being a N-linked derivative and second a S-linked one. Compound XII has a dipole moment of 4.44 D, but is of the (B) structure, its high moment being due to the carbonyl group. There are 1 table and 11 references: 7 Soviet-bloc and 4 non-Soviet-bloc. The references to the 4 most recent English-language publications read as follows: H. Koch, J. Chem. Soc. 401 (1949); T. Levi, U. S. Pat. 2,010,059 (1935); W. Sexton, A. Spinks, J. Chem. Soc. 1717 (1948); P. Oesper, G. Lewis, C. Smyth, J. Amer. Chem. Soc. 64, 1130, (1942).

ASSOCIATION: Nauchno-issledovatel'skiy institut shinnoy promyshlennosti i fiziko-khimicheskiy institut im L. Ya. Karpova (Scientific

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Investigation of...

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Research Institute of the Tire Industry and Physico-
Chemical Institute im. L. Ya. Karpov)

SUBMITTED December 2, 1960

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GUR'YANOVA, Ye.N.; EYTINGON, I.I.; FEL'DSHTeyN, M.S.; CHERNOMORSKAYA, I.G.;
DOGADKIN, B.A.

Structure of some derivatives of 2-mercaptobenzothiazole studied by
the dipole moment method. Zhur. ob. khim. 31 no. 11:3709-3712 N '61.
(MIRA 14:11)

1. Nauchno-issledovatel'skiy institut shinnoy promyshlennosti i
Fiziko-khimicheskiy institut imeni L.Ya. Karpova.
(Benzothiazole—Dipole moments)

15.9130

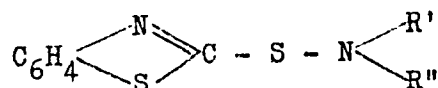
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S/080/61/034/009/017/016
D204/D305

AUTHORS: Fel'dshteyn, M.S., Chernamorskaya, I.G., Gur'yanova,
Ye.N., and Eytingon, I.I.

TITLE: The vulcanizing activity of sulfenamide derivatives of
2-mercaptobenzothiazole and exchange of thiobenzothia-
zolyte radicals with radioactive di-2-benzothiazyl-di-
sulphide

PERIODICAL: Zhurnal prikladnoy khimii, v. 34, no. 9, 1961,
2073 - 2079

TEXT: The authors wanted to study different sulfenamide deriva-
tives of 2-mercaptobenzothiazole. These are used widely in industry
as vulcanization accelerators. They have the general formula



and the vulcanizing effect depends to a large extent on the struc-
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ture of the R' and R" radicals. The derivatives were introduced into a mixture of butadienesterol rubber (CKC-30APM) and a small amount of sulphur (1.5 parts by weight to a 100 parts by weight of rubber) and vulcanized at a 143°. N,N-diethyl-,N-cyclohexyl- and N-oxydiethylene-2-benzothiazolsulfenamide form vulcanizing structures after 30 minutes heating whilst these structures are formed at a later stage of the process in the presence of N,N-dicyclohexyl and N-methyl-N-phenyl-2-benzothiazosulphenamides. This is technologically important because of the rapid viscosity rise. Moreover, the kinetics of the process can be, to a large extent, controlled. As regards the structural factors responsible for differences in vulcanizing activity of the sulphenamides the strength of chemical bond and the ease with which the molecule can form separate radicals is of prime importance. The mechanics of radical exchange has been studied using labelled atoms by Ye.N. Gariyanova (Ref. 3: sb. dokl. "Vulkanizatsiya rezin". Goskhimizdat, 101, 1954) In the present work the exchange of thiobenzothiazolye groups was studied between the investigated compounds on the one hand and

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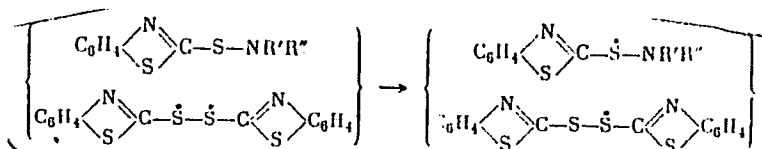
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The vulcanizing activity of ...

di-2-benzothiazylidisulphide with a labelled S^{35} atom in the di-sulphide bridge on the other:



The isotope exchange reaction was effected in toluene at a di-2-benzothiazylidisulphide/sulphenamide ratio of 1:2, avoiding side reactions and separating the rubber mixture components by paper chromatography. As regards exchange capacity the compounds can be classified as follows: N-cyclohexyl- > N-oxidiethylene (1-methyl-N-phenyl-) > N,N-dicyclohexyl- > N-phenyl-2-benzothiazylidisulphenamide. This too is of the order of vulcanizing activity. Thus, using sulfenamide accelerators the vulcanizing process is correlated with the exchange capacity of the thiobenzothiazyle radicals i.e. the more firmly the thio-benzothiazole groups are bound in

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